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Article

Research on Tourist Satisfaction Improvement Path Based on Multiple Regression Analysis in Tourism Management

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Abstract: As the core service object of the tourism industry, tourists' satisfaction with a tourist destination is an important influencing factor for the sustainable development of the tourism industry there. This paper proposes a set of tourist satisfaction index system containing a total of 20 secondary indicators from five perspectives: feeling experience, emotional experience, thinking experience, action experience, and association experience. And set the satisfaction of tourists' experience as the dependent variable, and 5 level 1 indicators as the independent variables. At the same time, IPA analysis was selected as the method of measuring tourist satisfaction, factor analysis as the method of testing the reliability and validity of the indicator system, and multiple linear regression prediction model as the method of analyzing the intrinsic relationship between the dependent indicator and multiple independent indicators. Taking K scenic spot as the experimental object, the potential relationship between dependent and independent variables is analyzed based on sample data. Among them, emotional experience has the greatest positive effect on tourist satisfaction, with a regression coefficient of 1.677. Accordingly, in tourism management, the emotional experience of tourists should be the first consideration, and the overall satisfaction should be promoted by providing a good emotional experience.

Keywords: IPA analysis; factor analysis; multiple linear regression prediction; tourist satisfaction

1. Introduction

In recent years, China's economy has achieved high-quality development, with residents' disposable income continuously increasing and their consumption demands steadily growing, thereby driving the development of the tourism industry [1-2]. With the promotion of high-quality development in the cultural and tourism sectors, and the shift in tourists' travel preferences from sightseeing tourism to composite tourism, various tourist destinations have been actively innovating and developing tourism projects such as tourism performances, scenic area music festivals, and ice and snow festivals [3-6]. However, while cultivating and developing new integrated tourism formats and attracting a large number of tourists, many issues have also emerged, leading to relatively low tourist satisfaction [7-8]. Tourist satisfaction refers to the degree to which tourists are satisfied with the products or services provided by a tourist destination [9]. Paying attention to tourist satisfaction evaluations and providing personalized tourism products and services based on tourists' diverse needs are of great significance for improving the service quality of tourist attractions or destinations, enhancing brand awareness, and meeting the growing needs of the people for a better life [10-13]. Therefore, in the context of the strong recovery of the tourism market, understanding tourist needs and post-trip evaluations, identifying urgent issues that tourist destinations need to address, and improving tourist satisfaction have become particularly urgent [14].

As the core of the entire tourism development system, taking visitor satisfaction as the starting point

to explore the concepts, objectives, pathways, and strategies for tourism industry development is particularly important [15-16]. Literature [17] employs Latent Dirichlet Allocation (LDA) analysis to conduct a quantitative analysis of visitor satisfaction, extracting key dimensions related to customer service from visitor evaluations to improve critical interaction points between management and visitors, thereby effectively enhancing visitor satisfaction. Literature [18] established a structural equation model to study the structural relationship between tourist satisfaction and sustainable tourism, finding that cultural, institutional, and economic sustainability are important factors influencing tourist satisfaction, providing insights for management upgrades in the tourism industry. Literature [19] proposed using a descriptive structural equation model to analyze empirical survey data in tourism management, studying the impact of marketing mix and service quality on tourist satisfaction to seek improvement strategies in tourism management. Literature [20] constructs visitor satisfaction indices and visitor happiness indices to evaluate the experiential value of visitors at tourist destinations, and based on the evaluation results, expands efforts to enhance visitor experiences and happiness. Literature [21] explores factors influencing visitor satisfaction in tourism supply chain management using intelligent neural network algorithms, thereby establishing more mature management schemes at tourist destinations to further enhance visitor satisfaction. It can be seen that the application of tourist satisfaction evaluation tools can fully uncover tourists' perceptions of tourism attraction display platforms and related services, providing targeted pathways for tourism attraction managers and marketers to improve services and drive tourist satisfaction enhancement.

Based on the existing research, this paper firstly designs the structure and content of the indicator system of tourists' satisfaction initially, and selects the dependent variable and independent variable indicators of the research. It also elaborates the basic principles and workflow of IPA analysis, factor analysis and multivariate linear regression prediction model, which are three different analysis methods. Secondly, the proposed index system is tested for reliability and validity, and the final structure of the index system is determined to form the research and analysis framework. Once again, take K scenic spot as the experimental object, make questionnaires based on the proposed indicator system to obtain research data, and use IPA analysis method to analyze the importance and satisfaction of secondary indicators. The multiple linear regression prediction model is used to analyze the differences in age of the independent variables and explore the potential relationship between the dependent and independent variables. Finally, the content and results of the analysis are synthesized to propose a path to improve tourist satisfaction in tourism management.

2. Indicator Interpretation and Variable Design

According to relevant theories, experience perception can be divided into five dimensions, namely, sensory experience, emotional experience, thinking experience, action experience, and associated experience, which represent different aspects to measure the experience perception status of tourists. Specifically, this paper combines the actual situation of tourism management to clarify the content of the three-level indicators of the five dimensions. First, the sensory experience includes six aspects: regional location, geomorphic features, natural environment, attraction layout, transportation facilities, and service facilities. Second, the emotional experience includes five aspects: ease of access to relevant information, humanized service facilities, high-quality service personnel, high-level service quality, and high-match service commitment. Third, the thinking experience includes three aspects of theme characteristics, cultural connotation, and logo design. Fourth, the action experience includes three aspects: the participation generated by the experience activities, the interaction generated by the experience activities, and the personalization generated by the experience activities. Fifth, the associated experience includes three aspects of tourism culture, tourism brand image, and social value of tourism products and services.

Meanwhile, the research variables in this paper are divided into dependent and independent variables. The dependent variable refers to (Y) tourists' experience satisfaction, which is the overall evaluation of the featured town after touring. The independent variables refer to (A) feeling experience, (B) emotional experience, (C) thinking experience, (D) action experience, and (E) association experience, respectively.

The specific content of the visitor satisfaction index system is shown in Table 1.

Table 1. Tourist satisfaction experience perception indicators.

Primary index	Secondary index
(A) Sensory experience	(A1) regional position
	(A2) geomorphic feature
	(A3) natural environment
	(A4) Layout of scenic spots

	(A5) means of transportation
	(A6) service facility
(B) Emotional experience	(B1) The convenience of obtaining relevant information
	(B2) High-level service quality
	(B3) High-quality service personnel
	(B4) Humanized service facilities
	(B5) High matching degree service commitment
(C) Mental experience	(C1) thematic feature
	(C2) cultural connotation
	(C3) sign design
(D) Action experience	(D1) The personalization generated by experience activities
	(D2) Experience the interactivity generated by the activity
	(D3) The participation generated by the experience activities
(E) Associated experience	(E1) Tourism culture
	(E2) The tourism brand image
	(E3) The social value of tourism products and services

3. Research Methodology

3.1. IPA Analysis

IPA, i.e., Importance-Performance Analysis, can also be called Importance-Satisfaction Analysis when it is applied to satisfaction evaluation.IPA analysis model was firstly proposed in 1977, which was first used for automobile dealers' performance analysis, and then widely used in tourism industry because of its intuition and practicality, and now it is mainly applied to tourism destination image research, tourism destination competitiveness, tourists' experience satisfaction research and hotel service quality research. Now it is mainly used in tourism destination image research, tourism destination competitiveness, tourist experience satisfaction research and hotel service quality research. The basic idea is that customer satisfaction with a product or service is based on the importance they attach to each attribute of the product or service and their evaluation of the performance of each attribute. Consumers are asked to score the importance and satisfaction of a product or service, and the scores are mapped to a two-dimensional coordinate dividing the four quadrants, so as to analyze the problem from the customer's point of view.The IPA analysis model is shown in Figure 1.

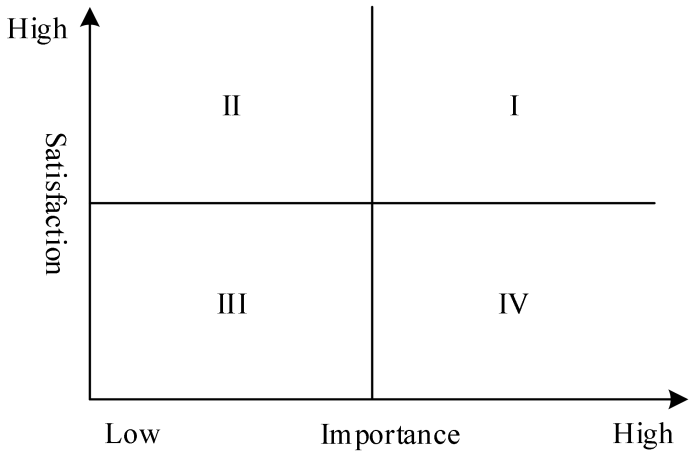

Figure 1. IPA analysis model.

The importance evaluation was taken as the abscissa axis and the satisfaction evaluation was taken as the vertical axis, and four quadrants were divided, representing four different regions: "dominant area", "maintenance area", "slow improvement area" and "key improvement area".

Zone "I" is the dominant area, which is an area with high importance and satisfaction performance, and it is necessary to continue to maintain this advantage. Zone "II" is the maintenance zone, which is an area with low importance, but good actual experience and high satisfaction performance. Zone "III" is a slow improvement area, an area with low importance and satisfaction performance, and also needs to be improved, but not urgently. The "IV" area is a key improvement area, which is an area with high

importance and low satisfaction performance, and needs to be focused on improvement.

3.2. Factor Analysis

Factor analysis is a commonly used statistical method for exploring the underlying structure and correlation between multiple variables. The basic idea can be divided into the following steps:

Step 1: Determine the suitability of factor analysis: before conducting factor analysis, it is necessary to ensure that there is a certain correlation between the selected variables and that the data meet certain assumptions. To confirm the suitability of the data for factor analysis, the Kaiser-Meyer-Olkin (KMO) measure and the Bartlett's Sphericity Test can be used.The KMO measure measures the degree of correlation between the variables, with a value between 0 and 1, with a value closer to 1 indicating that the correlation between the variables is higher, making them suitable for factor analysis. The Bartlett's Sphericity Test, on the other hand, is used to test whether the correlation between the variables is significant or not, and if the result is significant, the data is suitable for factor analysis.

Step 2: Determine the appropriate number of factors: determining the appropriate number of factors is a key step in factor analysis. It is generally determined by the common factor variance. The common factor variance is the proportion of the total variance explained by each factor, usually expressed as the cumulative variance contribution. Generally speaking, the cumulative variance contribution ratio should reach more than 70% to ensure that the selected factors can better explain the variability of the data.

Step 3: Determine the number of factors: After determining the appropriate number of factors, the final number of factors needs to be confirmed by total variance interpretation. Total Variance Explanation is an assessment of the degree of explanation of the selected factors, which can help to determine the final number of factors and explain the significance of the factors in the whole data set.

Step 4: Factor Rotation: In factor analysis, factors need to be rotated to make them more explanatory as they may be correlated with each other. Commonly used rotation methods include Variance Maximization Rotation (Varimax rotation), Great Likelihood Rotation (Promax rotation), and so on. Through the rotated factor loading matrix, the meaning of the factor and the degree of contribution of each variable to the factor can be understood more clearly.

Step 5: Calculate factor scores: the last step is to calculate the factor scores and total scores for each sample. The factor score represents the performance of each sample on each factor, while the total score is a comprehensive evaluation that takes all factor scores into account. The factor scores and total scores provide a better understanding of the performance and overall characteristics of the samples on each factor. The factor score formula is shown in equations (1)-(3):

$$F_1 = \beta_{11}X_1 + \beta_{12}X_2 + \ldots + \beta_{1m}X_m \tag{1}$$

$$F_2 = \beta_{21}X_1 + \beta_{22}X_2 + \ldots + \beta_{2m}X_m \tag{2}$$

$$F_n = \beta_{11}X_1 + \beta_{12}X_2 + \ldots + \beta_{1m}X_m \tag{3}$$

$F\left(i=1,2,\cdots,m\right)$ denotes the score of each public factor, and $\alpha i\left(i=1,2,\cdots,m\right)$ denotes the percentage of contribution of each factor, with Eq. (4):

$$F = a_1F_1 + a_2F_2 + \ldots + a_nF_n \tag{4}$$

$F\left(i=1,2,\cdots,m\right)$ represents the score of each public factor, $\alpha i\left(i=1,2,\cdots,m\right)$ represents the percentage contribution of each factor, by multiplying and then summing up, using SPSS26.0 to get the composite score ranking.

3.3. Multiple Linear Regression Prediction Model

Multiple linear regression model, as the name suggests, is to study the relationship between a dependent variable and multiple independent variables, which is similar in principle compared to one-dimensional linear regression, only more complex in calculation. If we assume that the dependent variable is y and we need to explore the linear relationship between the dependent variable y and n independent variables $x_1, x_2, \cdots, x_n$, the general multiple linear regression formula is shown in Equation (5):

$$y = \sum_{i=1}^{n} b_i x_i + b_0 + \varepsilon \tag{5}$$

where: b_i denotes the partial regression coefficient of its corresponding independent variable in the sample, which means the amount of change in the dependent variable y averaged over a unit change in the independent variable. b_0 is a constant representing the intercept. ε is the random error after removing the effects of n independent variables on the dependent variable y, also known as the residual, which is an unobservable random variable. If there are m groups of observations, then substituting them into the general formula yields equation (6):

$$\begin{cases} y_1 = b_0 + b_1 x_{11} + b_2 x_{12} + \cdots + b_n x_{1n} + \varepsilon_1 \\ y_2 = b_0 + b_1 x_{21} + b_2 x_{22} + \cdots + b_n x_{2n} + \varepsilon_2 \\ \vdots \\ y_m = b_0 + b_1 x_{m1} + b_2 x_{m2} + \cdots + b_n x_{mn} + \varepsilon_m \end{cases} \tag{6}$$

Write it in vector form as in equation (7):

$$\begin{cases} y = \begin{bmatrix} y_1 & y_2 & \cdots & y_m \end{bmatrix}^T \\ X = \begin{bmatrix} 1 & x_{11} & x_{12} & \cdots & x_{1n} \\ 1 & x_{21} & x_{22} & \cdots & x_{2n} \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ 1 & x_{m1} & x_{m2} & \cdots & x_{mn} \end{bmatrix} \\ b = \begin{bmatrix} b_0 & b_1 & \cdots & b_n \end{bmatrix}^T \\ \varepsilon = \begin{bmatrix} \varepsilon_1 & \varepsilon_2 & \cdots & \varepsilon_m \end{bmatrix}^T \end{cases} \tag{7}$$

Then equation (6) can be written as equation (8):

$$\begin{bmatrix} y_1 \\ y_2 \\ \vdots \\ y_m \end{bmatrix} = \begin{bmatrix} 1 & x_{11} & x_{12} & \cdots & x_{1n} \\ 1 & x_{21} & x_{22} & \cdots & x_{2n} \\ \vdots & \vdots & \vdots & \ddots & \vdots \\ 1 & x_{m1} & x_{m2} & \cdots & x_{mn} \end{bmatrix} \begin{bmatrix} b_0 \\ b_1 \\ \vdots \\ b_n \end{bmatrix} + \begin{bmatrix} \varepsilon_1 \\ \varepsilon_2 \\ \vdots \\ \varepsilon_m \end{bmatrix} \tag{8}$$

Eq. (8) can then be expressed as Eq. (9):

$$y = Xb + \varepsilon \tag{9}$$

where the vector of partial regression coefficients b is the unknown parameter and ε is the residual. In general X is referred to as an information matrix of order $m*(n+1)$, assuming that X is column-full-ranked, i.e., Eq. (10):

$$rank(X) = 1 + n \tag{10}$$

Eq. (10) represents the rank of the matrix X and Eq. (9) is a classical linear algebra formula. The objective is to solve the model for the vector of partial regression coefficients b.

4. Structural Testing of the Indicator System

4.1. Reliability Test

In this study, Cronbach'sAlpha coefficient is used to measure the size of the indicator system's credibility, the larger the alpha coefficient is, the higher the indicator system's credibility is, i.e., the higher the indicator system's credibility and stability is. The Cronbach'sAlpha coefficient of the indicator system is 0.60~0.65 (best not to). 0.65~0.70 (minimum acceptable value). 0.70~0.80 (quite good). 0.80~0.90 (very good). Therefore, the indicator system with Cronbach'sAlpha greater than 0.7 is an indicator system with excellent reliability.

After analyzing the data for reliability in this study, the results of the analysis are shown in Table 2, in which the alpha coefficient of (A) sensory experience is 0.933, (B) emotional experience is 0.898, (C)

thinking experience is 0.954, (D) action experience is 0.961, and (E) correlation experience is 0.92. The Cronbach'sAlpha of each dimension of the indicator system is greater than 0.7, which indicates that the data under each dimension has good reliability, and the Cronbach'sAlpha of the total dimension is 0.92 greater than 0.8, which indicates that the data as a whole has good reliability, and the reliability test of this study can be passed.

Table 2. Reliability Analysis Results.

Variable	Cronbach's Alpha
A	0.933
B	0.898
C	0.954
D	0.961
E	0.854
Total dimension	0.92

4.2. Validity Tests

The validity test of the indicator system includes two parts: content validity and structural validity. The latent variables in this study are based on mature theoretical models and previous research validation, and the observed variables in the latent variables in the design process of the indicator system have been improved under the guidance of experts in related fields, so the indicator system has good content validity.

The results of KMO statistic and Bartlett's spherical test of the indicator system are shown in Table 3. In this study, the KMO statistic is 0.867, and the x2 value of Bartlett's spherical test is 6812.745 (df = 200, p = 0.000), which reaches the significance level. It means that the null hypothesis is rejected and the chosen hypothesis is accepted that the correlation matrix is not a unit matrix. There is correlation between the original variables and it is suitable for principal component analysis.

Table 3. KMO and Bartlett Tes.

KMO Value		0.867
Bartlett's sphericity test	chi-square	6812.745
	Degree of freedom	200
	Significance	0.000

From the above analysis, it can be seen that the index system in this paper can be subjected to principal component analysis, so the principal component analysis method is used to extract the factors of the index system, and the principal factors are named, factor A is "sensory experience", and the factor carrying value is distributed between 0.71~0.952. Factor B is "emotional experience", and the carrying value of the factor is distributed between 0.727~0.832. Factor C is "thinking experience", and the carrying value of the factor is distributed between 0.743~0.981. Factor D is "action experience", and the carrying value of the factor is distributed between 0.77~0.884. The factor is rotated by the orthogonal rotation method, and the factor coefficient greater than 0.5 is filled in Table 4. The results showed that the number of custom extraction factors was 5, and the cumulative variance contribution rate reached 78.845%, indicating that the discriminative validity of this study was high.

Table 4. Component Matrix after Rotation.

	Ingredient				
	A	B	C	D	E
(A1)	0.79				
(A2)	0.891				
(A3)	0.71				
(A4)	0.876				
(A5)	0.774				
(A6)	0.952				
(B1)		0.727			
(B2)		0.771			
(B3)		0.817			
(B4)		0.832			

(B5)		0.828			
(C1)			0.743		
(C2)			0.981		
(C3)			0.829		
(D1)				0.874	
(D2)				0.77	
(D3)				0.884	
(E1)					0.74
(E2)					0.851
(E3)					0.742
Total	4.203	3.975	2.553	2.528	2.333
Percentage of variance (%)	18.731	17.214	15.915	14.874	12.111
Accumulation (%)	18.731	35.945	51.86	66.734	78.845

5. Analysis and Improvement Path of Tourist Satisfaction

Based on the index system proposed above, a questionnaire was designed to collect the satisfaction of tourists' experience in K Scenic Area on May 16, 2022 by distributing the questionnaires on the spot. A total of 300 questionnaires were distributed and 271 valid questionnaires were returned, with an effective rate of 90.33%.

5.1. Demographic Characterization of the Sample

SPSS26.0 software was used to statistically analyze the returned valid questionnaires, and the basic information of combing tourists is shown in Table 5. Among the 271 valid samples, men accounted for 39.11%, and women accounted for 60.89%, with a female predominance. From the perspective of age level, the survey respondents are mostly in the age of 18 to 40, and the total percentage reaches 73.43%. In terms of occupation, enterprise employees accounted for 28.78% of the total, while students, freelancers, retirees and institutional workers accounted for 15.87%, 18.45%, 15.5% and 9.23% in that order. In terms of monthly income, 3,000 to 5,000 yuan is the largest number of people, accounting for 54.61%. The above basic information situation of age, occupation and other basic information is more widely distributed, covering multiple dimensions, and is also basically consistent with the actual situation, indicating that the basic information situation of the sample can meet the needs of this study.

Table 5. Analysis of Demographic Characteristics of Tourists.

Tourist characteristics		Number	Proportion (%)
Gender	Male	106	39.11
	Female	165	60.89
Age	Under 18	24	8.86
	18-30	101	37.27
	31-40	98	36.16
	More than 40	48	17.71
occupation	Employees of the enterprises	78	28.78
	Staff members of public institutions	25	9.23
	Student	43	15.87
	Soldier	13	4.80
	Liberal professions	50	18.45
	Retiree	42	15.50
	Else	20	7.36
Earning	Less than 3,000 yuan	18	6.64
	3,000 to 5,000 yuan	148	54.61
	5,001 to 8,000 yuan	78	28.78
	More than 8,000 yuan	27	9.97

5.2. Analysis of Importance and Satisfaction of Secondary Indicators

The statistical data of secondary indicators of tourist satisfaction in Scenic Area K are shown in Table 6. Among the 20 secondary indicators, a total of 17 secondary indicators have an importance (I) > 4,

which indicates that overall tourists' expectations of Scenic Area K are high. And among the 17 secondary indicators, there are: (A2) geomorphic features, (A4) attraction layout, (A6) service facilities, (B5) high matching degree of service commitment, (C2) cultural connotation, (D2) interactivity generated by experiential activities, and (E3) social value of tourism products and services, totaling 7 secondary indicators whose satisfaction is higher than the importance. It can be seen that K scenic spot has more excellent performance in tourism management within the scenic spot.

Table 6. Analysis of the Importance and Satisfaction of Secondary Indicators.

Index	*I*	*P*	*I-P*	*t* value	Sig.
(A1)	4.5	4.12	0.38	2.167	0.000
(A2)	4.47	4.75	-0.28	2.803	0.000
(A3)	4.47	4.1	0.37	4.627	0.036
(A4)	4.25	4.45	-0.2	3.253	0.000
(A5)	4.56	4.4	0.16	4.793	0.000
(A6)	3.83	4.38	-0.55	-0.281	0.000
(B1)	4.76	3.95	0.81	2.21	0.000
(B2)	4.52	4.17	0.35	2.692	0.000
(B3)	4.01	3.84	0.17	4.04	0.182
(B4)	3.91	4.68	-0.77	-0.145	0.000
(B5)	4.52	4.32	0.2	3.786	0.000
(C1)	4.58	3.83	0.75	3.389	0.000
(C2)	4.6	4.61	-0.01	-0.707	0.000
(C3)	3.91	3.81	0.1	3.955	0.000
(D1)	4.63	4.05	0.58	2.425	1.113
(D2)	4.61	4.91	-0.3	4.256	0.000
(D3)	4.64	4.4	0.24	4.106	0.000
(E1)	4.44	4.13	0.31	3.359	0.000
(E2)	4.59	4.48	0.11	2.418	0.000
(E3)	4.03	4.49	-0.46	-1.563	0.000

From Table 6, it can be calculated that the comprehensive mean value of the 17 indicators of visitor satisfaction and importance in K scenic area is 4.48 and 4.29 respectively, so the intersection coordinates of the axis of visitor importance and the axis of actual satisfaction in K scenic area are set as (4.48,4.29). The four quadrants of IPA for visitors of K scenic spot are plotted in Fig. 2, and the 17 indicators are positioned in the figure.

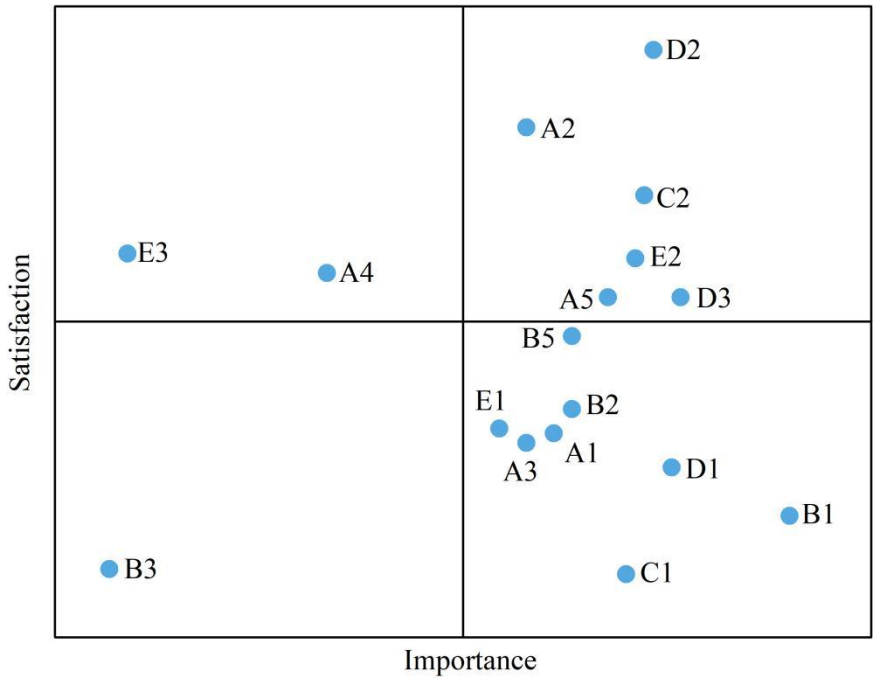

Figure 2. Tourist IPA four quadrants.

(1) Quadrant 1: Area of Strengths. The indicators of strengths of Scenic Area K include (D2) interactivity generated by experiential activities, (A2) geomorphological features, (C2) cultural connotations, (E2) small town tourism brand image, (D3) participation generated by experiential activities, and (A5) transportation facilities, which are recommended as the key directions for the future development of Scenic Area K.

(2) Quadrant II: Maintenance Area. The indicators in this quadrant are: (E3) social value of tourism products and services, (A4) attraction layout, indicating that K scenic spot exceeds the psychological expectations of tourists in attraction layout as well as services, and that the existing measures should be maintained in the future development in order to keep tourists' satisfaction high.

(3) Quadrant 3: Slow Improvement Area. There is only one indicator of (B3) high quality service personnel in this quadrant, and its importance evaluation and visitor satisfaction value are low, which should be taken as the direction to be actively expanded.

(4) Quadrant 4: Priority Improvement Area. There are: (B5) high matching service commitment, (E1) small town tourism culture, (A3) natural environment, (A1) regional location, (B2) high level of service quality, (D1) personalization of experiential activities, (C1) thematic characteristics, (B1) ease of access to relevant information a total of 8 second-level indicators, the importance of this quadrant of the region is high but the satisfaction is low, the gap between the expectations of the tourists and the reality of the existence of a large gap! , is the key improvement content for the future development of K scenic spot.

5.3. Exploration of Tourist Satisfaction Based on Variable Relationships

5.3.1. Analysis of Differences in the Independent Variables by Age

The ANOVA of the data of each independent variable at age is shown in Table 7. Overall, there are (A) sensory experience, (B) emotional experience, and (E) associative experience show statistically significant differences with age ($p < 0.05$). Therefore, in tourism management, the characteristics of different age groups should be combined to provide diversified and personalized tourism services to promote the enhancement of tourist satisfaction.

Table 7. Analysis of age differences in independent variables.

	Age	Mean value	SD	F	P
A	Under 18	3.85	0.56	7.89	0.030*
	18-30	4.05	0.9		
	31-40	3.7	0.11		
	More than 40	4.07	0.44		
B	Under 18	3.32	0.3	3.21	0.000***
	18-30	3.99	0.12		
	31-40	4.32	0.22		
	More than 40	3.25	0.07		
C	Under 18	4.15	0.29	2.58	0.055
	18-30	4.21	0.51		
	31-40	4.09	0.45		
	More than 40	3.18	0.15		
D	Under 18	4.23	0.01	2.33	0.051
	18-30	3.88	0.65		
	31-40	3.58	0.27		
	More than 40	3.24	0.13		
E	Under 18	4.45	0.44	3.09	0.007**
	18-30	3.44	0.99		
	31-40	3.65	0.46		
	More than 40	3.75	0.02		

5.3.2. Analysis of Binary Regression Results

The results of the binary regression analysis based on the multiple linear regression prediction model with tourist experience satisfaction as the dependent variable are shown in Table 8.All five independent variables have a positive effect on tourist satisfaction, which passes the statistical significance test ($p < 0.1$). Among them, (B) emotional experience has the greatest positive effect on tourist satisfaction, and

its regression coefficient is 1.677, which means that every unit increase in emotional experience increases tourist satisfaction by 1.677 units while controlling other variables unchanged.

Table 8. Results of binary logistic regression analysis.

	B	SE	Wald	Significance	Exp(B)
(Constant)	-10.023	2.741	15.003	0.000	0.000
A	0.87	0.652	4.967	0.006	1.957
B	1.677	0.431	4.284	0.000	5.888
C	0.46	0.537	7.994	0.031	0.463
D	0.897	0.474	0.861	0.042	2.229
E	0.864	0.562	1.876	0.000	3.621

5.4. Satisfaction Improvement Path in Tourism Management

Combined with the above analysis, it can be seen that in tourism management, sensory experience, emotional experience, thinking experience, action experience and related experience all play a role in tourist satisfaction to different degrees. Therefore, this paper puts forward the following two suggestions for the enhancement path of tourist satisfaction in tourism management:

(1) Focus on the layout and construction of scenic spots and provide good tourism services. Tourist satisfaction in tourism, and its actual experience in the scenic area is closely related. Therefore, in tourism management, the first need to pay attention to the layout of the scenic area planning and construction, to provide full and rich tourism content, to provide tourists with good thinking and action experience. Secondly, in the tourism service, should pay attention to the management and enhancement of the quality of the scenic area service personnel. Provide high-quality scenic area services, not only can comb the scenic area of the good reputation and can also meet the emotional experience of tourists, so as to promote the enhancement of tourist satisfaction. Finally, it should follow the development of the times, insist on promoting the construction of intelligent tourism, improve the construction of scenic digital service facilities such as intelligent parking, self-service, virtual reality experience, etc., to enhance the tourists' sensory experience.

(2) Combine the needs of tourists and establish a good image of the tourist place. Before the start of tourism, tourists' expectations of the tourist place are the main driving factors of tourism behavior. In the process of tourism, whether the needs of tourists arising from behavioral activities are effectively satisfied or not affects the tangible experience of tourists. Therefore, in the formulation of tourism management and development strategies, attention should be paid to collecting and combining the expectations and needs of tourists for scenic spots, targeting to improve tourist satisfaction, and establish a good image of high satisfaction of tourists.

6. Conclusion

In this paper, a set of visitor satisfaction index system consisting of five primary indicators of feeling experience, emotional experience, thinking experience, action experience and association experience and 20 secondary indicators is designed, and the Cronbach's Alpha of each dimension of the system is greater than 0.7, which has a good reliability.

Combining IPA analysis, multiple linear regression prediction model and the proposed indicator system, the variable relationship analysis based on the visitor satisfaction data of K scenic spots was carried out, in which there were statistically significant differences between the sensory experience, emotional experience, associative experience and age ($p < 0.05$). And all five independent variables have a positive effect on tourist satisfaction, which passed the statistical significance test ($p < 0.1$). And for the path of tourists' satisfaction enhancement in tourism management, two suggestions are put forward:

(1) Focus on the layout and construction of scenic spots to provide good tourism services.

(2) Combine with the needs of tourists to establish a good image of the tourist place.

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Living Inheritance and Innovative Development of the Intangible Cultural Heritage in the Grand Canal Cultural Belt in the Northern Anhui Region (Project Approval Number: 2024AH052259).

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